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To help answer the question: Do you have extra heifers and what should you do with them?, work through the following questions.

How many heifers do we need on the farm to maintain herd size?

When looking at the replacement program, the first question to be asked is how many heifers need to be raised to maintain the herd size of the dairy. Influencing this number is the cull rate of the dairy herd, the calving age of the dairy replacements, and the non-completion rate associated with the replacement enterprise. Table 1 shows the total number of heifers needed to maintain a 100 cow dairy herd using various calving ages and dairy turnover rates, with a 10% non-completion rate. Once you have completed a heifer inventory, the number of heifers that are actually on the farm can be compared to the number you need to maintain herd size. The difference is your additional investment in heifers, or the extra heifers that you are raising.

This number is based on the key assumptions not changing in the next few months. If there is a change in the cull rate or the non-completion rate, there may not be enough heifers to maintain herd size anymore. If you want to have the ability to handle some small changes, you can add 1-2 heifers to be raised, or you can plan on purchasing extra heifers at market prices if you need to do so.

What should I do with extra heifers?

With the number of extra heifers identified, the next question becomes, what can you do with these extra heifers? If you continue to raise them, each heifer will require additional investment every day. If you do sell your extra heifers now, you will generate some cash to help cover farm operating expenses and will decrease the current amount being spent to raise heifers. To help in answering this question, you need to think about costs versus value.

What Are The Costs to Raise Extra Heifers?

Understanding your cost of production is important when making decisions. From a study done by PRO-DAIRY and Cornell Cooperative Extension in December of 2007, the average cost to grow and maintain a heifer per day is \$2.49 (Karszes, Wickswat, Vokey). If we assume that the cost per day stayed constant over the total time to raise the heifer, the average total investment in a single heifer averaged \$1,734, not including the value of the animal at birth, but including both cash and non-cash costs. The largest expense is, of course, feed costs (51%) with labor following second (14%).

For this decision, only the additional cash costs that you will incur to raise the heifers to calving should be used for your calculations. These key cash costs are feed, breeding, labor, and veterinary and medicine. From the study in 2007, these costs totaled \$1.82. Cash costs will vary from farm to farm, so your own cost to raise heifers may be higher or lower. The feed cost portion, which total \$1.29, is comprised of both purchased and grown feed. This study assumes that the value of grown feed is the cost to grow and harvest, at approximately \$25 a ton for corn silage and \$35 a ton for haylage.



While incremental cash costs are the key focus when looking at raising extra heifers over the short term, the entire replacement program needs to be analyzed. Knowing the total cost to raise a heifer is critical in looking at the overall replacement program and how it fits with the dairy business, and whether other options for raising replacements should be considered.

What is the Value of Having Extra Heifers Raised to Calving?

The value of the heifer at the time of calving is the second key area to determine. Will raising extra heifers to completion create issues as you surpass your farm's maximum capacity for lactating animals? What is done with these animals once they have calved impacts the overall decision to raise extra heifers or not. In general, there are two things that can be done with extra animals as they approach calving: either sell them before they calve, or have them enter the dairy herd.

If you were to sell them as springers, the value is what the current market is willing to pay for them. As noted before, from Dairy Profit Weekly, this year you might receive \$900-\$1200 per animal. The value of a springing heifer to your own herd may be higher than the \$900-\$1200, depending on several factors: What is the expected profit from that animal over its' life in the herd? Does the farm have the ability or need to grow in herd size? Does the farm have the ability to market lactating cows? What is the current market value for lactating cows? What is the value to the farm for the genetics and disease control of your heifers being raised on farm?

Your advisory team, farm management extension educators, and outside consultants can help determine the value that might be associated with the above questions. In the example below, we will be assuming that the farm is at a stable herd size at maximum management capacity with no desire to add cows, and that the extra heifers would be marketed as springers if they were to continue to raise them.

Example:

A 100 cow dairy with a cull rate of 33% and an age of first calving of 22 months currently has an inventory of 79 replacements. Utilizing the earlier table, 64 replacements of all ages would be required to maintain herd size, which indicates that 15 extra animals are being raised. Looking at further detail of the ages of the replacements, the excess inventory is evenly spread out among animals breeding age and older, with an average age of 17.5 months.

If the example dairy were to sell the 15 extra animals now, assuming they would received an average value of \$900 each, they would receive a total of \$13,500, which could be utilized by the farm to service cash commitment needs. This value is pre-tax, and as the sale of heifers may have tax implications, individual farms would have to analyze any income tax repercussions.

If this farm chose to raise the heifers until completion, they would be investing additional cash into raising them at a rate of \$1.82 a day. With the 15 animals evenly spread out over the last 9 months before calving, on average, the heifers will be raised 4.5 months, which is an additional 137 days. At \$1.82 per day, this would equal \$250 per heifer, or a total of \$3,750 for all 15 animals, until they are sold or entered the herd.

If the average value of the heifer when sold at calving is less than \$1,150 (\$900 original value plus



the \$250 cost to raise until calving), the animal should be sold now. If the price of a heifer is higher than \$1,150 per head in value at calving, then the farm would consider still raising them.

The time value of money is not considered in this example. If the farm is under severe cash commitment challenges, then the cash today would have a considerably higher value than cash received over the next 9 months. Under less severe cash commitment needs, the cash today would be of similar value as the cash received over the next 9 months. This value could add \$10-15 per head to the value of the heifer if you chose to continue to raise them, based on the cost of borrowed funds and the time lag until funds are received. While this may be a small number, it is a value to be considered.

As with all business decisions, what numbers are used in your calculations can and will impact the decision that is made. If the daily cash costs are lower, a small change in value would cover the additional costs. If the cash costs are higher, or the value received in the future is lower, then the animals would be marketed sooner.

In conclusion, analyzing your heifer replacement program is important to your overall farm profitability. During lean times, selling an asset, whether an extra replacement or not, without fully examining the costs and values of that asset can be detrimental to your dairy operation. Making a smart decision involves knowing your cost of raising heifers, and what realistic returns you are achieving with your replacement program.